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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,287	03/01/2004	Christopher Jones	1391-27809	9502

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EXAMINER

GABOR, OTILIA

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/790,287

Applicant(s)

JONES ET AL.

Examiner

Otilia Gabor

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-46 is/are allowed.
- 6) ☒ Claim(s) 47-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed 03/01/2004 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

Note: the documents were present but no IDS list was supplied.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 58-60 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The presence of the first, second and third downstream as well as the first, second and third upstream signals to calculate the parameter indicative of the presence of the isotope and to determine the degree of dilution of the fluid is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Claim 58 recites that the microprocessor needs only the first and second upstream signals to calculate the parameter claimed in claim 47, however, using only the upstream signals will not allow such a determination since the upstream signals are the signals that don't even go through the sample and reference fluids, at

Art Unit: 2878

most they measure the light beam that comes from the light source. Also, the use of only the upstream third signal does not enable for the determination of the degree the fluid needs to be diluted at, since the signal does not enter the dilution cell at all, thus it does not give any indication of the sample concentration in the cell.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 56-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 56 recites the limitation "said third beam portion" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 47 from which claim 56 depends does not contain a recitation to a third beam portion.

7. Claim 58 recites the limitation "the diluent" in line 4. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 59 recites the limitation "the diluent" in line1. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 60 recites the limitation "the diluent" in 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 47-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (U. S. Patent 5317156) and further in view of Mori et al. (6,455,852).

Cooper et al. discloses an apparatus and method for determining the concentration of carbon isotope present in a sample, the apparatus comprises:

- a laser source 15 which is a tunable laser diode, for emitting at least one laser beam onto
- a sample cell 12S containing a sample with an unknown concentration of the carbon isotope and onto

- a reference cell 12R containing a known sample having a known concentration of the target substance
- a detector 20S for detecting the radiation that passed through the sample cell 12S and providing a first signal indicative of the intensity of radiation after being passed through the sample cell; the signal is indicative of how much is being absorbed by the sample, which also is indicative of the sample's transmittance
- a detector 20R for detecting the radiation that passed through the reference cell 12R and providing a second signal indicative of the intensity of radiation after being passed through the reference sample; the signal is indicative of how much is being absorbed by the composition which is also indicative of the composition's transmittance
- a microprocessor 95 for receiving the first signal from the sample detector 20S and the second signal from the reference detector 20R through the processing electronics, and calculating the ratio of the signals in order to determine the concentration ratio of the sample and the reference from which the concentration of the carbon isotope in the sample is calculated.

In one embodiment, there is one laser beam generated and split so that a portion of it reaches the sample cell and another the reference cell (see Fig.3A), and in another embodiment two separate laser beams are used so that one beam reaches the sample cell and another the reference cell (see Fig.2). The sample used can contain methane (thus a hydrocarbon) (see Col.9, line 57). The temperature of the sample and the

Art Unit: 2878

reference was controlled and kept constant (see Fig.4B). Having used two different wavelength beams through both cells, the carbon isotopic composition of individual compounds in the sample gas mixture is calculated (i.e., the concentration of  $^{13}\text{CO}_2$  relative to  $^{12}\text{CO}_2$  is calculated in a mixture of gas from the breath or from methane).

Cooper et al. in Col.8, lines 30-60, discloses calibrating the sample and reference cells relative to the pressure of the gas in the cell and thus the pressure (one parameter) in the reference cell is normalized.

Cooper et al. discloses in Col.8, lines 41-61 steps to normalize the ratio between the response of the reference cell and the sample cell to different pressures, and thus the response of the sample cell and the reference cell to the pressure is normalized one against the other.

Regarding claim 47 Cooper fails to disclose a pre-dilution cell, however, since the claim as presented fails to specify the role, function and any significance to the presence of such a cell, and since according to Mori et al. when an isotopic ratio is calculated based on reference and sample cell measurements it is advantageous to calibrate the reference sample by measuring the sample gas in pre-diluted and diluted form and dilute the sample gas according to the measurement data obtained, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a pre-dilution cell in the Cooper device since it allows for calibration of the reference sample and since the Applicant has not disclosed that the presence of this pre-dilution cell solves any stated problems or is for any particular purpose and it appears that the invention would perform equally well without it.

***Allowable Subject Matter***

13. Claims 1-46 are allowed.

14. Claims 56, 57 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: Based on the Affidavit presented by Applicant Jones, the enablement rejection is removed, and since the prior art applied does not include the limitation that the parameter to be calculated is the enrichment or depletion of the isotope, the independent claims 1 and 17 were found to include allowable subject. Regarding independent claim 36 there is no evidence in the prior art searched of a tool for determining the amount of carbon isotope in a fluid with the specifics as claimed, especially that both the reference and sample cells have a detector at their inlet as well as at their outlet whereby the sample-measurement beam is measured by the first upstream (inlet) and first downstream (outlet) detectors and the reference-measurement beam is measured by the second upstream (inlet) and second downstream (outlet) detectors. Regarding claims 56-57 there is no evidence in the prior art searched of a tool as claimed in the claims, especially that there is a first, second and third upstream, and first, second and third downstream detectors to detect the signal before and after the beam enters the sample, reference and pre-dilution cells.



Art Unit: 2878

***Response to Arguments***

16. Applicant's arguments with respect to claims 47-60 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 571-272-2435. The examiner can normally be reached on Monday-Friday between 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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